

Listing of Claims:

Claim 1 (currently amended): In a data communication network for supporting mobile users, a method of operating a mobile control function, said method comprising:

exchanging mobile information with a mobile station via a radio access network according to a radio access network protocol;

exchanging call control information with a call agent associated with a call of said mobile station, said call agent configured to perform call control functions including call setup and connection and maintain call state information~~performing call control operations comprising call setup for both mobile and non-mobile calls~~; and

maintaining connection state information for said mobile station while said mobile station is handled via said radio access network;

wherein said mobile control function is performed in a separate entity from said call agent.

Claim 2 (original): The method of claim 1 further comprising:

upon receipt of a handoff request from said radio access network, transferring responsibility for maintaining connection state information to another mobile control function.

Claim 3 (original): The method of claim 1 wherein exchanging call control information comprises exchanging call control information via an IP network.

Claim 4 (currently amended): In a data communication network for supporting mobile users, a method of operating a call agent, said method comprising:

performing call control operations ~~comprising call setup for both mobile and non-mobile calls~~ call setup and connection;

exchanging call control information with a first mobile control function responsible for mobility management of a mobile station having a call handled by said call agent; and

maintaining call state information for said mobile station;

wherein said mobile control function is a separate entity from said call agent.

Claim 5 (original): The method of claim 4 further comprising:

upon a shift of responsibility for mobility management of said mobile station from said first mobile control function to a second mobile control function , exchanging call control information with said second mobile control function ;

continuing to maintain call state information for said mobile station while said second mobile control function maintains connection state information for said mobile station.

Claim 6 (original): The method of claim 4 wherein said call control information comprises an indication of an inbound call for said mobile station.

Claim 7 (original): The method of claim 4 wherein said call control information comprises an indication of a dialed call from said mobile station.

Claim 8 (original): The method of claim 4 wherein exchanging call control information comprises exchanging call control information via an IP network.

Claim 9 (currently amended): For use in a data communication network for supporting mobile users, a computer program product for operating a mobile control function, said product comprising:

code that causes a processor to exchange mobile information with a mobile station via a radio access network according to a radio access network protocol;

code that causes said processor to exchange call control information with a call agent associated with a call of said mobile station, said call agent configured to perform call control functions including call setup and connection and maintain call state information ~~performing call control operations comprising call setup for both mobile and non-mobile calls;~~

code that causes said processor to maintain connection state information for said mobile station while said mobile station is handled via said radio access network; and

a computer-readable storage medium for storing the codes;

wherein said mobile control function is performed in a separate entity from said call agent.

Claim 10 (original): The computer program product of claim 9 further comprising:

code that, upon receipt of a handoff request from said radio access network, code that causes said processor to transfer responsibility for maintaining connection state information to another mobile control function.

Claim 11 (original): The computer program product of claim 9 wherein said code that causes said processor to exchange call control information comprises code that exchanges call control information via an IP network.

Claim 12 (currently amended): For use in a data communication network for supporting mobile users, a computer program product for operating a call agent, said product comprising:

code that causes a processor to perform call control operations comprising call setup and connection for both mobile and non-mobile calls;

code that causes said a processor to exchange call control information with a first mobile control function responsible for mobility management of a mobile station having a call handled by said call agent;

code that causes said processor to maintain call state information for said mobile station; and

a computer-readable storage medium that stores the codes;

wherein said mobile control function is a separate entity from said call agent.

Claim 13 (original): The product of claim 12 further comprising:

code that upon a shift of responsibility for mobility management of said mobile station from said first mobile control function to a second mobile control function , causes said processor to exchange call control information with said second mobile control function ;
and

code that causes said processor to continue to maintain call state information for said mobile station while said second mobile control function maintains connection state information for said mobile station.

Claim 14 (original): The product of claim 12 wherein said call control information comprises an indication of an inbound call for said mobile station.

Claim 15 (original): The product of claim 12 wherein said call control information comprises an indication of a dialed call from said mobile station.

Claim 16 (original): The product of claim 12 wherein said code that causes said processor to exchange call control information comprises code that causes said processor to exchange call control information via an IP network.

Claim 17 (currently amended): For use in a data communication network for supporting mobile users, an apparatus for operating a mobile control function, said method comprising:

a processor that executes software; and

a computer-readable storage medium that stores said software, said software comprising:

code that causes said processor to exchange mobile information with a mobile station via a radio access network according to a radio access network protocol;

code that causes said processor to exchange call control information with a call agent associated with a call of said mobile station, said call agent configured to perform call control functions including call setup and connection and maintain call state information ~~performing call control operations comprising call setup for both mobile and non-mobile calls;~~ and

code that causes said processor to maintain connection state information for said mobile station while said mobile station is handled via said radio access network;

wherein said mobile control function is performed in a separate entity from said call agent.

Claim 18 (original): The apparatus of claim 17 wherein said software further comprises:

code that, upon receipt of a handoff request from said radio access network, that causes said processor to transfer responsibility for maintaining connection state information to another mobile control function.

Claim 19 (original): The apparatus of claim 17 wherein said code that exchanges call control information comprises code that exchanges call control information via an IP network.

Claim 20 (currently amended): For use in a data communication network for supporting mobile users, apparatus for operating a call agent, said apparatus comprising:

a processor that executes software;

a computer-readable storage medium that stores said software, said software comprising:

code that causes said processor to perform call control operations comprising call setup and connection for both mobile and non-mobile calls;

code that causes said processor to exchange call control information with a first mobile control function responsible for mobility management of a mobile station having a call handled by said call agent; and

code that causes said processor to maintain call state information for said mobile station;

wherein said mobile control function is a separate entity from said call agent.

Claim 21 (original): The apparatus of claim 20 wherein said software further comprises:

code that upon a shift of responsibility for mobility management of said mobile station from said first mobile control function to a second mobile control function , causes said processor to exchange call control information with said second mobile control function ; and

code that causes said processor to continue to maintain call state information for said mobile station while said second mobile control function maintains connection state information for said mobile station.

Claim 22 (original): The apparatus of claim 20 wherein said call control information comprises an indication of an inbound call for said mobile station.

Claim 23 (original): The apparatus of claim 20 wherein said call control information comprises an indication of a dialed call from said mobile station.

Claim 24 (original): The apparatus of claim 20 wherein said code that exchanges call control information comprises code that exchanges call control information via an IP network.

Claim 25 (currently amended): In a data communication network for supporting mobile users, apparatus for operating a mobile control function, said apparatus comprising:

means for exchanging mobile information with a mobile station via a radio access network according to a radio access network protocol;

means for exchanging call control information with a call agent associated with a call of said mobile station, said call agent configured to perform call control functions including call setup and connection and maintain call state information ~~performing call control operations comprising call setup for both mobile and non-mobile calls~~; and

means for maintaining connection state information for said mobile station while said mobile station is handled via said radio access network;

wherein said mobile control function is performed in a separate entity from said call agent.

Claim 26 (original): The apparatus of claim 25 further comprising:

means for, upon receipt of a handoff request from said radio access network, transferring responsibility for maintaining connection state information to another mobile control function.

Claim 27 (original): The apparatus of claim 25 wherein said means for exchanging call control information comprises means for exchanging call control information via an IP network.

Claim 28 (currently amended): In a data communication network for supporting mobile users, apparatus for operating a call agent, said apparatus comprising:

means for performing call control operations comprising call setup and connection ~~for both mobile and non-mobile calls~~;

means for exchanging call control information with a first mobile control function responsible for mobility management of a mobile station having a call handled by said call agent; and

means for maintaining call state information for said mobile station;

wherein said mobile control function is a separate entity from said call agent.

Claim 29 (original): The apparatus of claim 28 further comprising:

means for, upon a shift of responsibility for mobility management of said mobile station from said first mobile control function to a second mobile control function, exchanging call control information with said second mobile control function; and

means for continuing to maintain call state information for said mobile station while said second mobile control function maintains connection state information for said mobile station.

Claim 30 (original): The apparatus of claim 28 wherein said call control information comprises an indication of an inbound call for said mobile station.

Claim 31 (original): The apparatus of claim 28 wherein said call control information comprises an indication of a dialed call from said mobile station.

Claim 32 (original): The apparatus of claim 28 wherein said means for exchanging call control information comprises means for exchanging call control information via an IP network.

Claim 33 (currently amended): A data communication network, comprising:
a mobile control function, which is responsible for mobility management of a mobile station, that exchanges information via a radio access network according to a radio access network protocol and maintains connection state information for said mobile station while said mobile station is handled via said radio access network; and

a call agent capable of performing call control operations comprising call setup and connection for both mobile and non-mobile calls, which is associated with a call of said mobile station, that exchanges call control information with said mobile control function and maintaining call state information for said mobile station;

wherein said mobile control function and call agent are separate entities.

Claim 34 (previously presented): The network of claim 33 wherein upon receipt of a handoff request from said radio access network, said mobile control function

transfers responsibility for maintaining connection state information to another mobile control function.

Claim 35 (previously presented): The network of claim 33, wherein said connection state information is mobile registered or session active.

Claim 36 (previously presented): The network of claim 33, wherein said call state information is connected, call in progress, releasing, suspend, or busy.

Claim 37 (new): The network of claim 33 wherein the mobile control function and the call agent are configured to communicate utilizing an IP control protocol.

Claim 38 (new): The network of claim 37 wherein the IP control protocol is a session initiation protocol (SIP).

Claim 39 (new): The network of claim 33 wherein the call agent is configured to perform call control operations for mobile and non-mobile calls.

Claim 40 (new): The method of claim 1 wherein communication between said mobile control function and said call agent is via an IP control protocol.